INFORMATION PROCESSING APPARATUS WITH DOUBLE-SIDED OPERABLE KEYBOARD

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a Continuation of Continuation-In-Part (CIP) application Ser. No. 10/638,557, filed Aug. 12, 2003 now U.S. Pat. No. 7,499,029, now allowed, which is the child of application Ser. No. 10/331,502, filed on Dec. 31, 2002, now Abandoned, and claims priority to Japanese Application No. 2002-226441 filed Aug. 2, 2002.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an information processing apparatus with a double-sided operable keyboard, capable of executing desired application processing even in a folded state.

2. Description of the Related Art

Due to the recent rapid spread of personal computers, an environment is increasing in which personal computers are used in a similar manner to that of electrical appliances even in general households. However, most of the personal computers are composed of a display apparatus, a computer body, and a keyboard apparatus, so that it is difficult to keep a space for setting a computer in individual households.

In order to solve the problem regarding such a setting space, for example, JP 2000-259970 A discloses a method for ensuring a use environment of a personal computer without wasting a living space by providing a cavity on a wall surface in a household and setting a personal computer therein.

However, in view of the housing situation in this country, only some households can provide a cavity on a wall surface. Therefore, this cannot be actually a solution to the above problem. Recently, some models have started coming on the market, which has a configuration with a foldable keyboard and is intended to effectively use a space at least during a period of time when computers are not being used.

However, merely with the configuration with a foldable keyboard, the following problems arise.

First, when a keyboard is folded, a personal computer cannot be operated. In the existing circumstance, it takes a considerable amount of time to start up or terminate an operating system, so that it is considered to provide a resume function. This undermines the reason for making a keyboard foldable.

The following is also considered: function keys are arranged on the periphery of a display screen in a configuration where a keyboard is foldable on the display screen, whereby any application may be operated even when the keyboard is folded. However, in this case, irrespective of whether the keyboard is folded or not, the function keys are effective, making an operation complicated to a user, which may cause malfunction.

SUMMARY OF THE INVENTION

Therefore, with the foregoing in mind, it is an object of the present invention to provide an information processing apparatus with a double-sided operable keyboard, capable of executing desired application processing even in the case where a keyboard is folded and keys to be normally operated are directed to a reverse side (e.g., a display apparatus side) with respect to a user.

In order to achieve the above-mentioned object, an information processing apparatus with a double-sided operable keyboard of the present invention includes a display apparatus and a keyboard apparatus, wherein the keyboard apparatus is foldable so as to cover a lower part or a portion of a display region in the display apparatus, and a bottom surface of the keyboard apparatus is provided with at least one function key assigned an arbitrary application.

Because of the above configuration, even in the case where a keyboard is folded, and keys to be normally operated are directed to the display apparatus, desired application processing can be executed by the operation of function keys.

The function keys are arbitrarily assigned applications. One function key may be assigned one application. A plurality of function keys may be assigned different functions of one application. One function key may be assigned at least two applications.

Furthermore, it is preferable that the information processing apparatus with a double-sided operable keyboard of the present invention includes a keyboard position detecting part for detecting a relative position of the keyboard apparatus with respect to the display apparatus, thereby switching effective keys between keys on an upper surface of the keyboard apparatus and keys on a bottom surface of the keyboard apparatus, in accordance with the relative position of the keyboard apparatus. Malfunction between the keys on the upper surface of the keyboard apparatus and those on the bottom surface thereof can be prevented, and key malfunction due to the shock during folding can be prevented.

Furthermore, in the information processing apparatus with a double-sided operable keyboard of the present invention, it is preferable that the keyboard position detecting part detects a tilt angle between the keyboard apparatus and a display part of the display apparatus. This is because the information processing apparatus normally includes a rotation part for folding the keyboard apparatus at the bottom of an information processing apparatus body.

In the information processing apparatus with a double-sided operable keyboard according to the present invention, the keyboard apparatus may be used in at least two states including a first state in which the keyboard apparatus is folded so as to cover the lower part or the portion of the display region in the display apparatus and a second state in which the keyboard apparatus is removed from the display apparatus so that a surface with at least one function key formed thereon is placed upward. In the second state, the keyboard apparatus and the information processing apparatus may be connected to each other via a cable, or data may be transmitted/received therebetween by radio communication.

Furthermore, in the above aspect, it is preferable that the keyboard apparatus is capable of being used even in a third state in which the keyboard apparatus is removed from the display apparatus so that a surface with the at least one function key formed thereon is placed downward, the keyboard apparatus includes a keyboard posture detecting part for detecting which surface of the keyboard apparatus is an upper surface, and the information processing apparatus includes an input control part for switching effective keys between keys on the upper surface of the keyboard apparatus and keys on the bottom surface of the keyboard apparatus, in accordance with detection results of the keyboard posture detecting part. The reason for this is as follows. For example, by setting keys on the upper surface to be effective and setting keys on the bottom surface to be ineffective, erroneous operation of keys can be prevented when a user uses the keyboard apparatus on the lap or the like.